14. The temperature of a plate at the point (x, y) is $T(x, y) = 20 - x^2 - 2y^2$. Find the path that a heat seeking particle would travel if it starts at the point $(-1, 2)$. (The particle always moves in the direction of the greatest increase in temperature.)

15. Find $\displaystyle\int_0^1 \int_y^1 e^{x^2}\, dx\, dy$.

16. Consider the solid which is bounded by $2x + 3y + 6z = 12$ and the three coordinate planes. The density of the solid at the point (x, y, z) is x. Find the mass of the solid. Set up the integral, **but do NOT compute the integral.**

17. Find the volume of the region between $z = 9 - x^2 - y^2$ and the xy plane.